UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/092,158	06/05/98	MERCHANT S	MERCHANT3333

MMC2/0620

EXAMINER	
EATON,K	

ART UNIT	PAPER NUMBER
2823	

CHARLES W GAINES
HITT CHWANG & GAINES
225 UNIVERSITY PLAZA
275 WEST CAMPBELL ROAD
RICHARDSON TX 75080

DATE MAILED: 06/20/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

PTO-90C (Rev.11/00)

1- File Copy

Office Action Summary	Application No.	Applicant(s)	
	09/092,158	MERCHANT ET AL.	
	Examiner	Art Unit	
	Kurt M. Eaton	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-12 and 14-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-12 and 14-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 16 .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 5-7, 12, 14, 16, 17, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung in view of Yamamori, as previously applied in the office action mailed 1/31/01.

3. Claims 4, 8-11, 15, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung in view of Yamamori as applied to claims 1 and 12 above, and further in view of applicants admitted prior art, as previously applied in the office action mailed 1/31/01.

Response to Amendment

4. The Affidavit filed under 37 CFR §1.131 on 3/29/01 has been considered but is ineffective to overcome the Yamamori (U.S. Patent No. 5,731,225) reference.

5. The evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Yamamori (U.S. Patent No. 5,731,225) reference. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See

Mergenthaler v. Scudder, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897). The evidence submitted is insufficient to establish a reduction to practice of the invention in this country or a NAFTA or WTO member country prior to the effective date of the Yamamori (U.S. Patent No. 5,731,225) reference. The effective date of the Yamamori (U.S. Patent No. 5,731,225) reference is not its issue date of 3/24/98, but rather its effective filing date which is 4/18/96.

Response to Arguments

6. Applicant's arguments filed 3/29/01 have been fully considered but they are not persuasive.

Response to Arguments Concerning Rejections of Claims 1, 2, 4-12, and 14-24 under 35 USC §103

7. Applicant contends the rejection of claims 1, 2, 4-12, 14-24 under 35 USC §103 as being unpatentable over the combination of Chung in view of Yamamori is improper because, "while Yamamori does teach that heating to a temperature of 220 °C or higher may remove the fluorine from the barrier surface, nothing in Yamamori suggests a temperature sufficient to anneal the barrier layer".

The examiner respectfully submits the fact that Yamamori taught heating (i.e., annealing) to a temperature of 220 °C or higher clearly suggests a process of annealing the barrier layer as far as the invention defined by the instantly presented claims is concerned.

8. Applicant further contends that one skilled in the art would not be motivated to reach barrier annealing temperatures since such temperatures enhance the reactivity of the barrier layer, thereby promoting the formation of barrier-fluorine compounds" - a result antithetical to Yamamori's expressed motivation of removing fluorine from the barrier.

The examiner respectfully submits that Yamamori teaches removing the barrier-fluorine compounds by annealing the barrier layer at a temperature of 220 °C or higher. Accordingly, it is

readily apparent from Yamamori that annealing temperatures over 220 °C do not, as alleged by applicant, promote the formation of barrier-fluorine compounds.

9. Applicant asserts that claims 1, 12, and 24 each recite that the method subjects the plug to a temperature "sufficient to anneal the barrier layer, such that titanium silicide may be advantageously formed".

The examiner respectfully submits that applicants aforementioned arguments are not commensurate with the scope of any of the applicants claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

10. Lastly, applicant asserts that Yamamori is not a proper art reference for the purposes of establishing a *prima facie* case of obviousness because Yamamori is allegedly antidated by an Affidavit filed under 37 CFR §1.131 on 3/29/01 which states one of the inventors present in the application conceived of and reduced to practice the invention of the instant application prior to 3/24/98.

The examiner respectfully submits that, in order for the aforementioned Affidavit to antidate the Yamamori reference, its effective filing date of 4/18/96 must be antidated.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Paper related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication of earlier communication from the examiner should be directed to **Kurt Eaton** at **(703) 305-0383** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via kurt.eaton@uspto.gov.

LONG PHAM
PRIMARY EXAMINER